

ABSTRACT OF THE DISCLOSURE

A liquid crystal display includes: a) a sapphire substrate having a first crystal lattice structure; b) a single crystal silicon structure having a thickness no greater than about 100 nanometers affixed to the sapphire substrate to create a silicon-on-sapphire structure, and a second crystal lattice structure oriented by the first crystal lattice structure; c) an array of liquid crystal capacitors formed on the silicon-on-sapphire structure; and d) integrated self-aligned circuitry formed from the silicon layer which is operably coupled to modulate the liquid crystal capacitors. The liquid crystals capacitors may include nematic or ferroelectric liquid crystal material.